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UNITED STATES PATENT AND TRADEMARK OFFICE

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10/603,649	06/26/2003	Katsumi Arata	0033-0886P	4030

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EXAMINER
CARTER, AARON W

ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/28/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/28/2007.

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PTOL-90A (Rev. 10/06)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *26 January 2007*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,2,4,5,7,8,10,11,13,14,16,18,20,21 and 23-34* is/are rejected.

7) ☒ Claim(s) *3,6,9,12,15,17,19 and 22* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *26 June 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/26/03*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election with traverse of the Group 1 in the reply filed on January 26, 2007 is

acknowledged. The traversal is on the ground(s) that there is no serious burden in examination.

This is found persuasive and the restriction requirement is withdrawn.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject
Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as
follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive
> material." In this context, "functional descriptive material" consists of data structures and computer programs
> which impart functionality when employed as a computer component. (The definition of "data structure" is "a
> physical or logical relationship among data elements, designed to support specific data manipulation functions."
> The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional
> descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement
> of data.

> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and
> functionally interrelated to the medium and will be statutory in most cases since use of technology permits the
> function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d
> 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases
> computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to
> computer having a specific data structure stored in memory held statutory product-by-process claim) with
> Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element
> which defines structural and functional interrelationships between the computer program and the rest of the
> computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32
> F.3d at 1583-84, 32 USPQ2d at 1035.

3.   Claims 25, 26, 31 and 32 are rejected under 35 U.S.C. 101 because the claimed invention

is directed to non-statutory subject matter as follows. Claims 25, 26, 31 and 32 define a

"program product to have a computer execute" embodying functional descriptive material.

However, the claim does not define a computer-readable medium or memory and is thus non-

statutory for that reason (i.e., "When functional descriptive material is recorded on some

computer-readable medium it becomes structurally and functionally interrelated to the medium

and will be statutory in most cases since use of technology permits the function of the descriptive

material to be realized" – Guidelines Annex IV). That is, the scope of the presently "program

product to have a computer execute" can range from paper on which the program is written, to a

program simply contemplated and memorized by a person. The examiner suggests amending the

claim to embody the program on "computer-readable medium" or equivalent in order to make

the claim statutory. Any amendment to the claim should be commensurate with its

corresponding disclosure.

4.   Claims 27, 28, 33 and 34 are rejected under 35 U.S.C. 101 because the claimed invention

is directed to non-statutory subject matter as follows. Claims 27, 28, 33 and 34 define a

"machine readable recording medium recording a program to have a computer execute"

embodying functional descriptive material. However, the claim does not define a computer-

readable medium or memory and is thus non-statutory for that reason (i.e., "When functional

descriptive material is recorded on some computer-readable medium it becomes structurally and

functionally interrelated to the medium and will be statutory in most cases since use of

technology permits the function of the descriptive material to be realized" – Guidelines Annex

IV). The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 18, 20, 21 and 23-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,539,125 to Harrington.

As to claim 1, Harrington discloses a filtering apparatus calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image (column 3, lines 33-37, wherein N*N corresponds to K*K), comprising:

Receiving means for receiving said N pixel values (column 3, lines 41-45, wherein the sampled intensity values is equal to N*N, which corresponds to the "N" value disclosed in the limitations of the present claim);

Removing means for removing, from said received N pixel values, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order (column 3, lines 41-45 and lines 55-58, wherein sampled intensity values are sorted highest to lowest or vice versa and by selecting a

the number corresponding to 2N-1 the invention of Harrington is removing the first to ((N-1)/2)th pixel values as disclosed in the limitations of the claim or in terms of the claimed invention (2N-1), as disclosed by Harrington, would be equal to (2K-1)); and

Sorting means for outputting a pixel value as sorted in accordance with said prescribed order as said median (column 3, lines 55-58, wherein selecting the (2N-1) pixel value, or in terms of the claimed invention (2K-1), as disclosed by Harrington, is the equivalent of to outputting the first pixel of the remaining pixels disclosed in the limitations of the present claim.

Harrington does not disclose expressly removing from said N pixel values only the first to ((N-1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-1)/2) pixel values as the median.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to remove from said N pixel values only the first to ((N-1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-1)/2) pixel values as the median. Applicant has not disclosed that this particular process of removing from said N pixel values only the first to ((N-1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-1)/2) pixel values as the median provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with as simply selecting the (2K-1) pixel value as the median because the output is identical.

Therefore, it would have been obvious to one of ordinary skill in this art to modify the invention disclosed by Harrington with the process of removing from said N pixel values only

the first to ((N-1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-1)/2) pixel values as the median to obtain the invention as specified in claim 1.

As to claim 2, Harrington discloses the filtering apparatus according to claim 1, wherein said prescribed order is either ascending order or descending order (column 3, lines 41-43).

As to claim 4, Harrington discloses a filtering apparatus calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image (column 3, lines 33-37, wherein N*N corresponds to K*K), comprising:

Receiving means for receiving said N pixel values (column 3, lines 41-45, wherein the sampled intensity values is equal to N*N, which corresponds to the "N" value disclosed in the limitations of the present claim);

Removing means for removing, from said received N pixel values, ((N-1)/2+2) to Nth pixel values as sorted in accordance with a prescribed order (column 3, lines 41-45 and lines 55-58, wherein sampled intensity values are sorted highest to lowest or vice versa and by selecting a the number corresponding to 2N-1 the invention of Harrington is removing the ((N-1)/2+2) to Nth pixel values as disclosed in the limitations of the claim or in terms of the claimed invention (2N-1), as disclosed by Harrington, would be equal to (2K-1)); and

Sorting means for outputting a pixel value as sorted in accordance with said prescribed order as said median (column 3, lines 55-58, wherein selecting the (2N-1) pixel value, or in terms of the claimed invention (2K-1), as disclosed by Harrington, is the equivalent of to

outputting the (N-(N-1)/2) pixel of the remaining pixels disclosed in the limitations of the present claim.

Harrington does not disclose expressly removing from said N pixel values only the ((N-1)/2+2) to Nth pixel values and selecting the (N-(N-1)/2)th value of the remaining (N-(N-1)/2) pixel values as the median.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to remove from said N pixel values only the ((N-1)/2+2) to Nth pixel values and selecting the (N-(N-1)/2)th pixel value of the remaining (N-(N-1)/2) pixel values as the median. Applicant has not disclosed that this particular process of removing from said N pixel values only the ((N-1)/2+2) to Nth pixel values and selecting the (N-(N-1)/2)th pixel value of the remaining (N-(N-1)/2) pixel values as the median provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with as simply selecting the (2K-1) pixel value as the median because the output is identical.

Therefore, it would have been obvious to one of ordinary skill in this art to modify the invention disclosed by Harrington with the process of removing from said N pixel values only the ((N-1)/2+2) to Nth pixel values and selecting the (N-(N-1)/2)th pixel value of the remaining (N-(N-1)/2) pixel values as the median to obtain the invention as specified in claim 4.

As to claim 5, please refer to the rejection of claim 2 above.

As to claim 7, all the limitations of claim 7 are address in the above rejection of claim 1

with the exception of the following limitation which is also disclosed by Harrington:

"...where a plurality of local areas including N pixel values of K*K (K is an odd number

not smaller than 3) being arranged overlapped with each other in a prescribed area of a digitized

image.." (column 3, lines 25-40, wherein the neighborhood is shifted across the image

corresponding to overlapping local areas).

As to claim 8, please refer to the rejection of claim 2 above.

As to claim 10, all the limitations of claim 10 are address in the above rejection of claim

4 with the exception of the following limitation which is also disclosed by Harrington:

"...where a plurality of local areas including N pixel values of K*K (K is an odd number

not smaller than 3) being arranged overlapped with each other in a prescribed area of a digitized

image.." (column 3, lines 25-40, wherein the neighborhood is shifted across the image

corresponding to overlapping local areas).

As to claim 11, please refer to the rejection of claim 2 above.

As to claim 13, Harrington discloses a data driven type information processing apparatus

including operating means receiving a packet having at least a destination field storing

destination information, an instruction field storing instruction information and data field storing

data, for executing an operation in accordance with a data flow program using the received

packet (column 2, line 65 – column 3, line 24), wherein

Said operating means includes filtering operation means for performing an operation in

accordance with a median filtering instruction instructing calculation of a median of N pixel

values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a

digitized image (column 3, lines 33-37, wherein N*N corresponds to K*K and column 3, lines

41-45, wherein the sampled intensity values is equal to N*N, which corresponds to the "N" value

disclosed in the limitations of the present claim), means for other operations and branching

means for outputting, based on said instruction information of said received packet, said received

packet either to said filtering operation means or said means for other operations (Fig. 2, element

150);

Said filtering operation means includes

Removing means for removing, from said received N pixel values in said data field of

said received packet, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed

order (column 3, lines 41-45 and lines 55-58, wherein sampled intensity values are sorted highest

to lowest or vice versa and by selecting a the number corresponding to 2N-1 the invention of

Harrington is removing the first to ((N-1)/2)th pixel values as disclosed in the limitations of the

claim or in terms of the claimed invention (2N-1), as disclosed by Harrington, would be equal to

(2K-1)); and

Sorting means for outputting a pixel value as sorted in accordance with said prescribed

order as said median (column 3, lines 55-58, wherein selecting the (2N-1) pixel value, or in

terms of the claimed invention (2K-1), as disclosed by Harrington, is the equivalent of to

outputting the first pixel of the remaining pixels disclosed in the limitations of the present claim.

Harrington does not disclose expressly removing from said N pixel values only the first

to ((N-1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-1)/2) pixel

values as the median.

At the time of the invention, it would have been obvious to a person of ordinary skill in

the art to remove from said N pixel values only the first to ((N-1)/2)th pixel values and selecting

the first pixel value of the remaining (N-(N-1)/2) pixel values as the median.   Applicant has not

disclosed that this particular process of removing from said N pixel values only the first to ((N-

1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-1)/2) pixel values

as the median provides an advantage, is used for a particular purpose or solves a stated problem.

One of ordinary skill in the art, furthermore, would have expected Applicant's invention to

perform equally well with as simply selecting the (2K-1) pixel value as the median because the

output is identical.

Therefore, it would have been obvious to one of ordinary skill in this art to modify the

invention disclosed by Harrington with the process of removing from said N pixel values only

the first to ((N-1)/2)th pixel values and selecting the first pixel value of the remaining (N-(N-

1)/2) pixel values as the median to obtain the invention as specified in claim 1.

As to claim 14, please refer to the rejection of claim 2 above.

As to claim 16, please refer to the rejection of claims 4 and 13 above.

As to claim 18, please refer to the rejection of claims 7 and 13 above.

As to claim 20, please refer to the rejection of claims 4, 10 and 13 above.

As to claim 21, please refer to the rejection of claim 2 above.

As to claims 23, 25 and 27, please refer to the rejection of claim 1 above.

As to claims 24, 26 and 28, please refer to the rejection of claim 4 above.

As to claims 29, 31 and 33, please refer to the rejection of claim 7 above.

As to claims 30, 32 and 34, please refer to the rejection of claim 10 above.

Allowable Subject Matter

7.   Claims 3, 6, 9, 12, 15, 17, 19 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 4,672,567 to Kelly et al. discloses a median filter.

USPN 4,747,052 to Hishinuma et al. discloses a median filter.

USPN 4,560,974 to Coleman et al. discloses a median filter.

USPN 6,163,324 to Holder discloses a median filter.

USPN 7,050,647 to Yamazaki discloses a median filter.

US 2001/0034749 to Jiang discloses a median filter.

USPN 6,760,737 to Jiang discloses a median filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is (571) 272-7445. The examiner can normally be reached on 8am - 4:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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